

ABSTRACT OF THE DISCLOSURE

Bistable molecules are provided with at least one photosensitive functional group. As thus constituted, the bistable molecules are photopatternable, thereby allowing fabrication of micrometer-scale and nanometer-scale circuits in discrete areas without relying on a top conductor as a mask. The bistable molecules may comprise molecules that undergo redox reactions, such as rotaxanes and catenanes, or may comprise molecules that undergo an electric-field-induced band gap change that causes the molecules, or a portion thereof, to rotate, bend, twist, or otherwise change from a substantially fully conjugated state to a less conjugated state. The change in states in the latter case results in a change in electrical conductivity.